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Work-related road safety as a conduit for community road safety

Authors

Dr Will Murray, Interactive Driving Systems, Loughborough University and CARRS-Q (Correspondence to willmurray@roadrisk.net)
Dr Barry Watson, CARRS-Q

Abstract

The aim of this paper is to review the potential of work-related road safety as a conduit for community road safety based on research and practical experience.

It covers the opportunity to target young people, family and community members through the workplace as part of a holistic approach to occupational road safety informed by the Haddon Matrix.

Detailed case studies are presented based on British Telecom and Wolseley who have both committed to community-based initiatives as part of their long term, on-going work-related road safety programs.

Although no detailed community-based collision outcomes are available, the paper concludes that work-related road safety can be a conduit for community road safety, and provides an opportunity for researchers, policy makers and practitioners.

1 Introduction

This paper is based on a combination of research (1), discussions with industry experts (2-4) and applied practical experience with organisations like the two cases described below and aims to identify the ways in which work-related road safety can be a conduit for community road safety. From a research perspective, a recent major review of work-related road safety in Australia (5) indicated that there may be some type of 'work driver effect' that could be harnessed in a positive way to improve road safety in the wider community, in that if work drivers could 'take safety home', employees' private driving would be safer and their influence on family members could be positive. In particular, the review cited DuPont, where one of the motivators for its extensive work-related road safety program in Australia and around the world are the humanitarian and business benefits, where crashes occurring during a driver's private time, or involving their family, will inevitably affect their working life. Clarke (6) also focused on the safe driving of family members. More recently, Murray et al (7) identified a growing trend towards large, brand conscious, organisations focussing on road safety in their organisation and in local communities as an integral element of their Corporate Social Responsibility (CSR) programs, in many cases working with agencies such as the Global Road Safety Partnership and the road safety charity Brake.

Many issues remain unknown, however. These include:

- Does the influence of organisational safety culture remain with drivers after leaving the work environment?
- Can organisations gain political or public support through a well managed safety program?
- To what extent can organisations gain a competitive advantage by being ahead of, and helping to shape, road safety policy and laws?
- Does a good safety reputation help recruit and keep better quality, more loyal, employees?
- From an image perspective, can a work-related road safety program have marketing, image and branding benefits, for example with regulators and customers, for personal, organisational and community gain?
- What are the negative aspects of corporate road safety programs (8) and how can they be overcome?

While it is beyond the scope of this paper to address all these questions in detail, the remainder of the paper will focus on how these ideas were developed into practical outcomes, including a summary of the relationship

between safety and marketing, and how large corporate companies British Telecom (BT), and Wolseley, have successfully tailored road safety interventions for young workers, family members and the local community through the workplace as part of their CSR and community development programs. The paper also aims to show how a risk factor categorisation tool, known as the Haddon Matrix, has been adapted and used by organisations to build community-based initiatives into their wider work-related road safety programs.

2 Background – Work-related road safety, CSR and marketing

Many organisations have large and distinctive fleets and it is important for both employees and customers that they demonstrate a proactive approach to managing foreseeable risks. Due to their public exposure it is in their best interests to inform customers of road safety initiatives and their outcomes.

CSR, or corporate social responsibility (defined as the role of organisations in protecting people, profit and the planet), has grown increasingly important. Many organisations now have a CSR strategy or statement of intent. In recent years, more proactive organisations have begun to see the link between CSR and road safety – which clearly has a potential impact on people, profits and the planet. Good work-related road safety helps to protect people from injury, saves money and is good for the environment. Several examples of positive work-related road safety CSR including Johnson & Johnson, Shell and others are described by Murray et al (7). Overall, from a societal or CSR perspective, there appear to be many good reasons for organisations to focus on community initiatives as part of their work-related road safety.

Over the last few years the authors have discussed the relationship between work-related road safety and marketing with many stakeholders and published a brief guidance paper on it (9), in part influenced by the work of Laflamme et al (10). Many stakeholders at workshops, in-company events and conferences (for example see 2-4) were asked to think of two extreme options:

1. An organisation has a major incident their marketing/public relations (PR) department will have to spend a great deal of effort on damage limitation to manage the 'crisis', suppress any bad publicity and protect the brand.
2. An organisation wins a prestigious safety award, speaks at a major conference about their initiatives or is involved in their local community. This provides at least three opportunities to enhance brand reputation, through positive PR, the media power of the organising body and via local community groups.

Perhaps not surprisingly, option 2 was always the preferred choice.

As an example, organisations actively involved in initiatives such as the UK National Road Safety Week, organised by the road safety charity Brake, are mentioned in almost every local and national media outlet around the country. For only a small investment of time/funds this allows active participation in the local community and provides a great deal of media coverage. Internal Brake data made available to the authors suggests that Road Safety Week alone has generated the charity over £7.1 million of 'free' media coverage for road safety over the last three years.

Based on experiences over the last few years, there is no doubt that good safety performance can guarantee much more media coverage and speaking opportunities on the safety, transport, fleet, environmental and management conference circuit and opportunities to contribute to industry publications than any amount of planned business development activity. In other words, there are tangible marketing benefits from safety, and in the cases described below, the safety professionals involved have communicated and worked closely with the marketing/PR people in their organisation to gain maximum internal and external publicity for their initiatives.

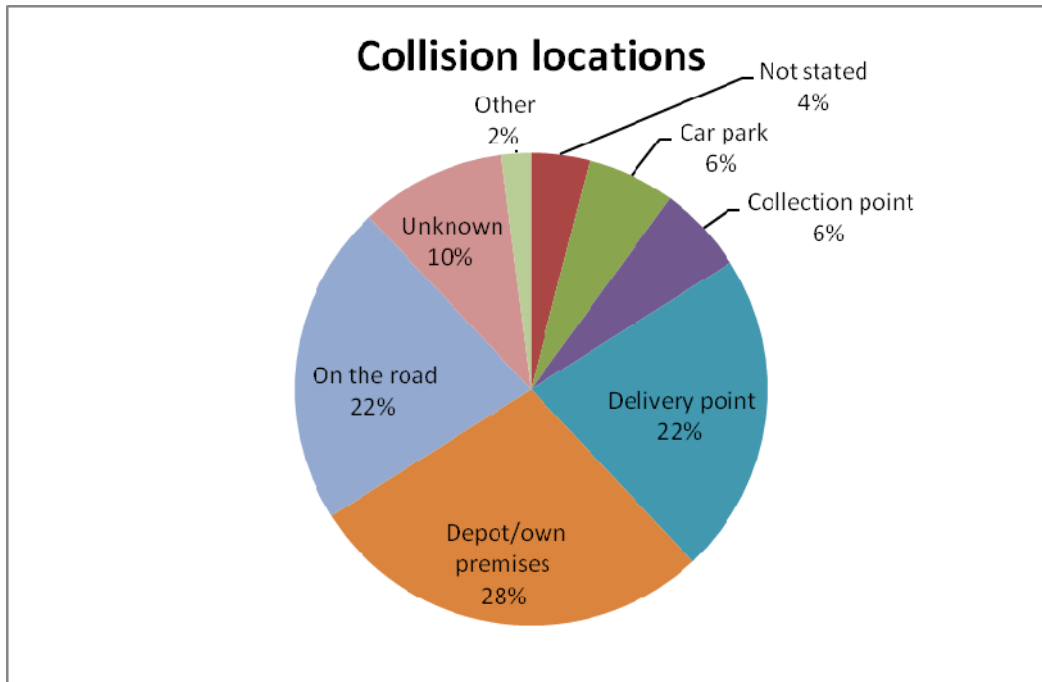
As well as external coverage, this can also benefit safety performance internally, as a large element of safety improvement work by both government and organisations involves marketing and communication – persuading people to change the way they behave. This means that working closely with, learning from and gaining the support of marketing people in organisations can help safety champions to develop better internal marketing campaigns aimed at promoting safer driving, and importantly confirm and reaffirm the importance of work-related road safety to senior managers. Particularly in larger organisations, experience suggests that this is of vital

importance in making the business case to invest time and resources. In making this business case, such programs are important for a number of reasons, which have been identified through previous research (1, 5) and cases (11):

1. Society – using the road is the most dangerous activity most people undertake. People aged under 25 are particularly at risk, making up approximately 10% of drivers in most developed countries, but being involved in 25% of fatal collisions (12).
2. Legally organisations have a duty of care to follow the rules of the road, and ensure that their people drive carefully, in vehicles that are roadworthy, licensed, certified and insured.
3. For the business, it is important that employees and their family remain fit and healthy – and avoid being involved in collisions. Taking the DuPont line mentioned earlier, if employees are off work due to their own or a family member's injury it has a major impact on company performance.
4. From a financial point of view, road accidents involving employees or their family members are very expensive. Wheatley (13) quoted Australian Industry Commission data which estimated that the costs road accidents at work are shared, 40% by the employee, 30% by the employer and 30% by the community. In accidents at home, or involving family members, the costs are met totally by the employee and the community.

Safety can also help support an organisation's marketing effort to get involved in their local community. As Figure 1 shows, many work related crashes happen close to home, meaning that fleet operators have a major impact on their local community, including their own employees and family members. This data was based on UK Department for Transport funded research with 50 organisations (14), and similar patterns have emerged in other unpublished studies with a range of organisations around the world. Particularly when organisations operate in certain territories, or on quite fixed stopping and starting locations, many vehicle collisions happen very close to home, or at regularly visited locations. This means that organisations can have a major positive or negative impact on the road safety in the communities in which they operate.

Figure 1 – Fleet vehicle collision locations, based on data from 50 fleets



A fleet risk management program can have wider benefits for the organisation than just safety. Based on our experiences observing and working with major organisations all over the world, there appear to be clear links between work-related road safety and other core business activities such as quality, efficiency, the environment, marketing and branding. It also gives an opportunity to play a wider role in the community, be seen as proactive

about its corporate responsibilities to people and the planet and to enhance its reputation. Finally, a fleet safety program can help to enhance safety and to meet transport, safety and other legal obligations.

This is important because many issues described in this paper are much wider than just road safety. For example, how do wider business changes affect people's driving safety? How do work schedules, payment systems and bonus schemes affect the risks drivers have to take? What work instructions are staff given and how do they affect driving? Have any business changes affected the way people report incidents?

An effectively run 'culture/community/management-based' program can motivate managers and staff to become change agents who lead by example and also bring many wider business, branding and corporate social responsibility opportunities. For this reason, we have developed a road safety model, based on the Haddon Matrix (15-18), and extended it (7, 11) in Figure 2 to include community engagement as a key component.

Figure 2 - Summary of work-related road safety program countermeasures in the adapted road safety model based on the Haddon Matrix

	Management culture	Journey	Road/site environment	People	Vehicle	Society/community/brand
Pre-crash	Business case Policy and procedures Organisational climate tools Management structure Board level champion Safety or quality-led Safety committee Safety pledge Contractor standards	Travel surveys Purpose Need to travel Modal choice Journey planning and route selection Shifts/working time	Risk assessments Guidelines Site layouts Road improvement	Select Recruit Induct Handbook Assess Train Driving pledge	Selection Maintenance Checking Telemetry to monitor	Marketing program Community involvement Safety groups Road Safety Week European Road Safety Charter Driving for Better Business Conference circuit CSR, media and PR Safety awards External benchmarking Regulator briefings and involvement Family/young driver program
At scene	Emergency support to driver	-	Manage scene	Known process to manage scene	Crashworthy Telemetry to capture data	Escalation process
Post-crash	Report, record, investigate and evaluate Review & Change manage	Debrief and review	Investigate and improve	Driver debrief Counselling & support Reassess/train	Investigate Telemetry data Vehicle inspection & repair	Manage reputation and community learning process

Although there are many positive aspects to such programs, questions have also been raised about the 'corporatisation' of road safety (8), particularly for example where the power of the motor industry focuses road safety investments on vehicles rather than changing policy on land use planning and safer modal choice issues.

It is important, therefore, that such initiatives are based on sound science and well researched road safety and journey planning-based interventions that reduce exposure, and promote safer and more sustainable ways of travelling and communicating, as well as safer driving and vehicles. In this regard, the road safety model informed by the Haddon Matrix provides a very useful framework that an increasing number of organisations have utilised to help focus on improving their road safety – and obtaining the many societal, legal, business and cost benefits that it can bring. Two cases are described below.

3 Examples of successful corporate community road safety programs

Case studies from BT and Wolseley are presented to highlight examples of how community road safety outcomes can be successfully achieved by organisations as part of their wider fleet safety initiatives. Both organisations have used the Haddon Matrix, and identified the importance of their role in society through the types of external road safety initiatives listed in the final column in Figure 2. For example both are regular invited speakers on the fleet safety conference circuit and both have embraced initiatives such as Road Safety Week, the European Road Safety Charter, Private Sector Road Safety Collaboration and UK government backed Driving for Better Business program as a way to launch, invigorate and communicate road safety initiatives. A range of other cases of organisations that have also embraced community road safety have been described by the UK road safety charity Brake (19) and in other research involving the authors (1, 7), but the remainder of this section focuses on BT and Wolseley.

3.1 BT

BT has approximately 44,000 cars and light commercial vehicles driven mainly by engineers and managers. A further 50,000 BT staff may be called upon to drive while at work. Since BT's Health and Safety Group identified driving as its biggest and most expensive risk during 2003, BT's quarterly meeting Motor Risk Management Forum (MRMF) has worked on a range of innovative work-related road safety initiatives, including a detailed 14 element work-related road safety strategy based on the Haddon Matrix. Element 12 of the strategy says:

'Online driver assessment and training tools freely available to family members of BT people and non Occupational Drivers to promote the community road safety agenda. In-vehicle training heavily discounted for family members, via BT Benefits Plus program.'

BT has invested a great deal of time, financial and intellectual capital in road safety and is highly committed – not only for BT but also for the local communities in which it operates. Due to its scale and commitment, BT has the potential to influence general road safety within the wider communities in which it operates for the benefit of society as a whole, particularly in the following ways.

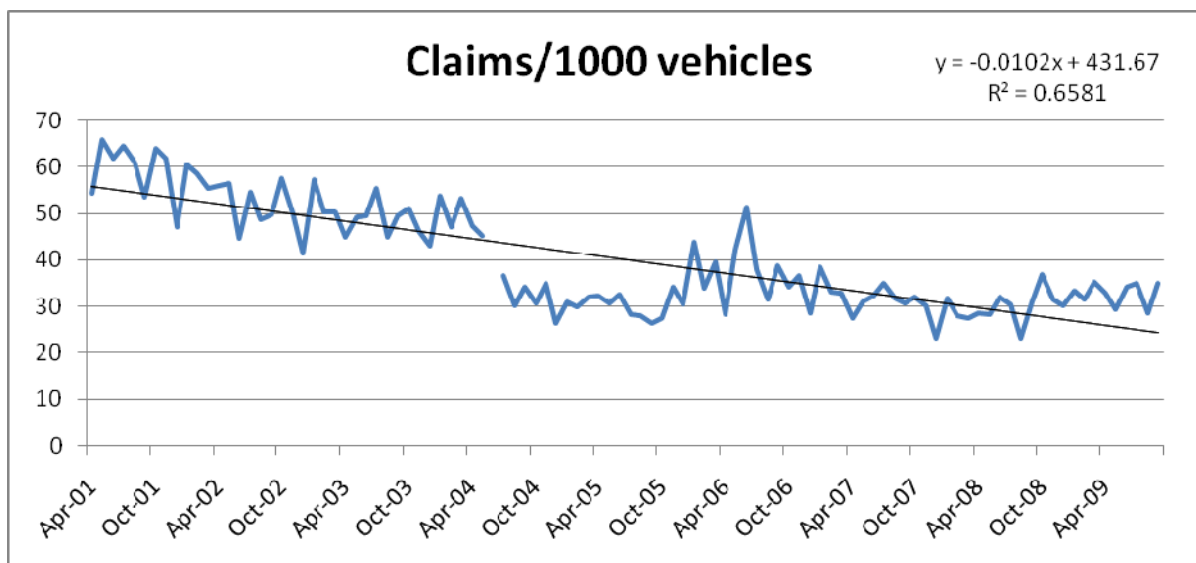
1. As part of its wider Corporate Social Responsibility (CSR) program, BT works as a Corporate Partner with Road Safety Charity Brake, including hosting a number of high profile projects and events in recent years. It is also involved as a Champion in the Driving for Better Business Program, supported by the UK Department for Transport, and has signed the European Road Safety Charter, committing itself to some very ambitious road safety targets.
2. By working closely with vehicle manufacturers BT has influenced them to change the safety specification of their vans, which due to BT's scale have then become standard features, meaning the wider van buying public and eventually society get better and safer vehicles. BT, and other fleets, sell their vehicles on typically within three years, so the more safety features they have the safer the overall UK vehicle fleet will be in a relatively short space of time.
3. Detailed analysis identified that a significant minority, in the region of 5%, of BT's motor vehicle collision claims involved family members driving BT vehicles. This led to new policies and procedures, a communications program and family members being offered access to an online training module called One More Second, supported by discounted on-road defensive driver training. This initiative was launched to coincide with Road Safety Week 2006, and is now re-launched annually as a community initiative. So far over 4,000 BT family members have logged onto One More Second. If each employee could persuade one of their family members to take part, over 100,000 people in the community would be effected.
4. BT's Group Risk Manager has become a sought after speaker on the 'work-related road safety circuit' and has undertaken many motivational speeches on the issue in the UK and overseas during the past six years.
5. Engaging with other fleets to work together and benchmark their performance, with BT being a founder member of the Fleet Safety Benchmarking Group (www.fleetsafetybenchmarking.net)
6. BT has an ageing population pyramid amongst its workforce, and in recent years has been recruiting a large number of young people into its business as apprentices. General road safety research, and BT's own internal data has shown that young drivers and new starters are statistically more prone to collision involvement than older drivers and existing staff. For this reason the company has focused heavily on

young drivers and new employees, through its Apprentice, Induction, Starting Point and Van Familiarisation initiatives.

Limited evaluation data is available at this point in time to assess the effectiveness of these community based initiatives. Discussions and on-going work with BT, however, has confirmed that they have derived many benefits from their work-related road safety programs, including:

- Monthly claims rate reduced from 60 per 1,000 vehicles in 2001 to 30 in 2009 (Figure 3) and significant cost reductions in the region of £10 million per annum.
- Managers and drivers achieved personal scorecard targets.
- Raised profile, awareness and brand internally and externally, including major contribution to Corporate Social Responsibility (CSR) program.
- Led to internal and external funding for program (eg Driver of Year prizes funded by insurer).
- Cost effective targeting of interventions and training, at the 5% of drivers who were most 'at-risk' and 75% of drivers identified as being at 'medium risk'.
- Visibility, integration and Indexing of assessment data with previously 'invisible' training and crash data.
- Reduced fleet's calamity claims premium and employer's Liability (EL) insurance costs.
- Established safety credentials – 65,000 drivers risk assessed and 35,000 trained either online or in-vehicle. 2,000+ managers trained.
- Allowed proactive management of key Government agencies and regulators.
- External recognition received including the Brake Fleet Safety Forum, Prince Michael Road Safety, Fleet News, European Strategic Risk awards, European Road Safety Charter and Driving for Better Business.

Figure 3 – BT claims rate per 1,000 vehicles 2001-2009 (Source: internal BT Fleet data)



3.2 Wolseley

With operations in Europe and the Americas, Wolseley is one of the world's largest building and plumbing suppliers to both trade and private customers. It operates more than 1800 retail outlets across the UK and Ireland. To support this massive outlet network, Wolseley operates a fleet of around 3,000 commercial vehicles and a similar number of company cars.

Wolseley's Fleet Safety Steering Group (FSSG), established in 2004, meets quarterly, and comprises internal managers from health and safety, transport, operations and fleet. It also has many influential external participants including its fleet insurer; insurance broker; fleet leasing company; accident management company; and, risk management advisors. Over the past three years the FSSG has made a great deal of progress

(described in detail in 11). Many initiatives have been, or are in the process of being, implemented based on the Haddon Matrix shown in Figure 2. One of these is a focus on community road safety, which is seen as an opportunity to develop the company's brand in the communities in which it operates.

As an example, during 2006, 2007 and 2008, Wolseley actively supported National Road Safety Week, run by the road safety charity Brake, as part of its comprehensive drive and investment in work-related road safety. Events and initiatives arranged for the week by Wolseley were aimed at urging all employees and their families to travel safely.

The company's extensive health and safety program features a regular monthly communication designed to promote a safe working environment across all Wolseley locations. During both years the November Essential Safety Theme topic supported the National Road Safety Week theme. The company's Essential Safety Theme pack, issued to all location managers, consisted of a Wolseley poster campaign for fleet management, briefing notes and a simple checklist – plus thousands of posters from Brake focusing on various risks associated with road safety. Employees were required to sign and acknowledge that they have read and understood the key messages relating to work-related road safety highlighted in the theme and the posters.

The main theme of Brake's Road Safety Week was in 2006 was young driver safety, as this group is involved in a disproportionate proportion of the fatal collisions on UK roads. For this reason, Wolseley invited all its first year graduate recruits to participate the company's online driver RoadRISK assessment program. The assessment, developed with the company's insurers and risk management advisors, enables the identification of potentially 'at risk' drivers, so that preventive measures can be taken.

In addition, the company showed the Brake Road Safety DVD 'Busy Enough to Kill' to all graduates based at its UK head offices. The DVD is full of case studies on events which have caused families to lose loved ones due to unsafe driving practices. All graduates who attended were also given a copy of the Wolseley Company Car and Safe Driving Handbook, which contains tips and guidance on company safe driving policy, procedures and best practice.

To demonstrate Wolseley's commitment to employee and community road safety, the company sponsored two giant Road Safety Week banners, which were placed in prominent locations in the two head office towns. In addition, a number of provisional driving licence-holder students from a local school were provided an opportunity to attend a practical and theory based safe driving workshop hosted by Wolseley's national fleet training company.

For Road Safety Week 2007, where the theme was vulnerable road users, a more comprehensive program was implemented and the company's Safety, Health and Environment Manager, successfully challenged all the internal and external members of the company's Fleet Safety Steering Group to pledge to undertake at least one positive road safety action during the week. One example is the fitment of 'cyclist beware' (Figure 4) decals on all its commercial vehicles, partly as a result of research showing the high risks that cyclists face when travelling near trucks.

Figure 4 – Wolseley cyclist beware decals



All the work-related road safety initiatives Wolseley has put in place over the last few years, including its community based programs, have brought many benefits to the company, including:

1. Independent fleet safety audit results show improvements in all areas and against industry standards.
2. Collision data and insurance loss ratios have improved substantially, with approximately 1,000 collisions a year avoided.
3. Uninsured loss recoveries alone have funded the program, and insurance premiums have reduced.
4. Important external recognition has been received from Brake, the Prince Michael Road Safety Awards and the Royal Society for the Prevention of Accidents.

4 Discussion and Conclusions

An increasing number of organisations are proactively managing the road safety of their workers, and members of the communities in which they operate (1, 5, 6, 7, 11, 19). Based on the discussion and case studies in this paper, focusing on community road safety as one element of a wider fleet management program can lead to positive community-based road safety initiatives. Externally, large employers have such a presence locally that they can do a great deal to effect the local communities in which they operate. As shown in the BT and Wolseley cases described, such initiatives include the following:

- Building in road safety as part of the organisations CSR strategy.
- Joining and being proactive members of safety groups such as Brake, the Private Sector Road Safety Collaboration, Fleet Safety Benchmarking Group and Driving for Better Business.
- Being involved in Road Safety Week, the European Road Safety Charter and other local community events.
- Entering award schemes to encourage, promote and evaluate good practice initiatives.
- Including family members in safety initiatives and communications.
- Presenting papers on safety at relevant conferences.
- Doing PR and publicity around safety performance.
- Developing an on-going 12-month rolling program of work-related road safety initiatives.
- Working closely with industry regulators, and inviting them to review and comment on aspects of the operation.
- Developing a pledge to drive safely program to engage employees and local communities.
- Having a post event escalation process to manage reputation and community learning.
- Linking safety and environmental initiatives, particularly through smarter ways of working involving less need to travel, optimised journey schedules to minimise mileages and opting for safer transport modes.

Although difficult to evaluate the direct road safety outcomes of such programs, at the very least they provide clear CSR, community building, PR and brand development benefits. This approach is sometimes criticised, as merely marketing or the corporatisation of road safety by large organisations with vested interests (8), however, as long as there is substance and a sound road safety basis for the program such initiatives are a positive step and should be encouraged.

The examples of BT, Wolseley and others (1, 7, 19) show that there is an opportunity to engage corporate organisations, and individual managers within them, in road safety initiatives, for the benefit of the organisation, its workers and the wider communities in which they operate.

In the cases described, individual managers in the organisations identified the benefits that such a focus on the community could bring both to them as individuals and to the organisation as a whole. The multiple road safety awards, company and personal recognition obtained provide an indication of the opportunities.

Based on the experience of BT, Wolseley and others, work-related road safety can be a conduit for community road safety programs. The workplace is an opportunity to target young drivers, family members and local communities – who are a captive audience because employers affect them economically and have a degree of control over them. In both the cases described, there are several things in place which provide a good practice guide for researchers, policy makers and practitioners wishing to replicate such programs:

- The organisations already have a business model, and holistic approach based on the Haddon Matrix, in place that shows the societal, business, legal and cost reasons to improve road safety, and have existing processes that can easily and naturally be extended to young workers, family members and the local community.
- Proactive health and safety managers that can see, or have data to show, the benefits to themselves and their organisations of investing some time, resources and energy in community engagement as part of their CSR and brand building initiatives.
- Support from senior managers in the organisation and external agencies, including willing suppliers, contractors and sub-contractors.
- Regular opportunities to review and promote safety outcomes, for example through board reporting, benchmarking, award schemes and other outreach opportunities such as conferences and research.
- Detailed evaluation and continuous improvement programs in place focusing on both process and outcome measures, meaning that although the impact of the specific community-based initiatives cannot be quantified the overall programs can be on several legal, business and cost-based indicators.

Overall, work-related road safety can be an excellent conduit for community road safety and organisations can gain many benefits, some of which can be quantified, others are more qualitative. Research and practice is continuing in this area, with an increasing number of corporate organisations making successful business cases for engaging with initiatives such as Road Safety Week and the European Road Safety Charter.

5 References

1. Murray W, Faulks I & Watson B (2007) Targeting road safety interventions at young workers and family members through the workplace. In Proceedings of the Australasian College of Road Safety's 2007 Conference – 'Infants, Children and Young People and Road Safety', Sydney, August 2-3
2. Murray W (2007) Using work-related road safety as a conduit for community road safety. Association of Industrial Road Safety Officers General Meeting, Birmingham, 19 September
3. Murray W (2007) Moving beyond compliance. Paper Presented at the Brake Duty of Care Workshop, Liverpool, 27 November
4. Murray W (2008) Corporate Fleet Risk Management as a conduit for Community Road Safety. AIRSO Road Safety Seminar Napier University, Edinburgh, 28 February
5. Murray W, Newnam S, Watson B, Davey J & Schonfeld C (2003) Evaluating and improving fleet safety in Australia. Australian Transport Safety Bureau Research Report, www.infrastructure.gov.au/roads/safety/publications/2003/eval_fleetsafe.aspx
6. Clark P (2006) Risk management: the danger in your drivers' loved ones. Fleet News, 8 August
7. Murray, W., Pratt, S., Hingston, J. & Dubens, E (2009) Promoting Global Initiatives for Occupational Road Safety: Review of Occupational Road Safety Worldwide (Draft), www.cdc.gov/niosh/programs/twu/global
8. Roberts I (2007) Formula One and global road safety, Journal of the Royal Society of Medicine, August 2007; Volume 100: p360 - 362
9. Murray W (2007) Safety – a hidden marketing tool? Roadsafte. Spring, p48-49
10. Laflamme L, Svanstrom L & Schelp L (1999) Safety promotion research: a public health approach to accident and injury prevention, Karolinska Institute, www.phs.ki.se/socmed/, ISBN 91 630 7856 2
11. Murray W, Ison S, Gallemore P & Nijjar H (2009) *Transportation Research Record: Journal of the Transportation Research Board*. ISSN: 0361-1981, Volume 2096 / 2009, DOI 10.3141/2096-08, P55-64
12. DfT (2006) Road Casualties Great Britain 2005 Annual Report, Department for Transport
13. Wheatley K (1997) An overview of issues in work-related driving. In Staysafe 36: Drivers as workers, vehicles as workplaces: Issues in fleet management. (Report No. 9/51). Ninth report of the Joint Standing Committee on Road Safety of the 51st Parliament. Sydney: Parliament of New South Wales
14. CoVIR (2003) Company Vehicle Incident Reporting and Recording. Department for Transport Road Safety Report 31, www.roads.dft.gov.uk/roadsafety/roadresearch/covir/pdf/covir.pdf
15. Haddon W (1967) The changing approach to the epidemiology, prevention, and amelioration of trauma: the transition to approaches etiologically rather than descriptively based. American Journal of Public Health, 58, 1431-1438

16. Haddon W (1980) Advances in the epidemiology of injuries as a basis for public policy. Public Health Reports, 95(5): 411-421
17. Williams A (1999) The Haddon Matrix: Its contribution to injury prevention and control. Paper presented at the Third National Conference on Injury Prevention and Control, 9-12 May 1999, Brisbane, Queensland
18. Faulks I & Irwin, J. (2002) Can Haddon's Matrix be extended to better account for work-related road use? In: STAYSAFE 57 (2002). Work-related road safety. Proceedings of a seminar held at Sydney, Thursday 8 February 2001. Report of the Joint Standing Committee on Road Safety, I.J. Faulks (Ed.). Sydney, NSW: Parliament of New South Wales
19. Brake Road Safety Week, www.roadsafetyweek.org.uk

Data for Figure 1

Not stated	4
Car park	6
Collection point	6
Delivery point	22
Depot/own premises	28
On the road	22
Unknown	10
Other	2